

DX 10 & 15

10kW and 15kW

Digital Solid State

AM Transmitters

No matter how demanding your broadcast needs, the Harris DX 10 and DX 15 will keep you on the air. Hundreds of broadcasters have benefited from the superior performance and reliability provided by Harris-patented digital amplitude modulation. According to our customers, DX transmitters provide unsurpassed audio performance, improved coverage, simple operation, the lowest cost of operation, and the highest reliability of any medium wave transmitter.

Features/Benefits

- ▶ **Digital:** Harris DX transmitters have Direct Digital Synthesis of the RF envelope using true digital modulation, not PDM.
- ▶ **Reliable:** Harris DX transmitters have set a new standard for RF amplifier reliability and ruggedness. The RF modules run exceptionally cool.
- ▶ **Simple:** Harris DX transmitters are simple to operate and maintain. Each system uses standard off-the-shelf components. Components are easily accessible and field repairable.
- ▶ **Efficient:** Harris DX transmitters are proven to yield typical efficiency of over 83%, resulting in the industry's lowest power cost.
- ▶ **Rugged:** Harris DX transmitters use a patented lightning protection system that virtually eliminates failures. Built-in surge protection is standard on all AC mains lines and internal power supplies.
- ▶ **Redundant:** Harris DX transmitters use redundant circuit designs in critical areas. Soft failure and FLEXPatch™ reassignment ensure uninterrupted broadcasting without significant degradation in performance. Broadband interchangeable RF amplifier modules simplify maintenance.
- ▶ **Future Compatibility:** Harris DX transmitters ensure future digital broadcast compatibility with high peak-to-average power capability, exceptional audio bandwidth, and virtually no audio-to-RF group delay variation. Harris DX transmitters have been used for IBOC field tests.



DX 10 & DX 15 Specifications

General

Type Of Modulation: Harris patented AM Digital Amplitude Modulation.
Transmitter Type: Medium Wave, 100% solid state.
Power Output Range: DX 10: 1 kW – 11 kW. DX 15: 2 kW - 15 kW. Transmitter capable of combined operation. Three adjustable pre-set power levels are provided.
Frequency Range: 531 kHz – 1705 kHz. Supplied, tuned and tested to one frequency as specified.
AC Mains Input: 197 – 281 VAC, 3 phase, 341-468 VAC, 3 phase, 4 wire.
Power Supply Variation: $\pm 10\%$ voltage, 48-63 Hz.
Transient Protection: Meets IEC 587 requirements.
Power Factor: 0.98% typical.
Frequency Stability: ± 10 Hz, 0 to 50°C, ± 2 Hz at typical conditions.
Audio Input: -10 to +10 dBm, adjustable transformerless input; 600, 150, and 50 ohm terminators provided.
RF Output: $1\frac{5}{8}$ " EIA flange.
RF Load: 50 ohms, unbalanced.
Cabinet & Harmonic/Spurious Radiation: Meets FCC, CCIR and IC requirements.
Overall AC Efficiency: Typically 83% at 10 kW and 15 kW.

Audio Performance

Audio Frequency Response: +0.2/-0.8 dB, 20 Hz to 10 kHz. Reference 1 kHz at 95% modulation.
Total Harmonic Distortion: DX 10: 0.8% or less at 95% modulation, 30 Hz to 10 kHz, at 10 kW; 0.5% typical. DX 15: 1.0% or less at 95% modulation, 30 Hz to 10 kHz, at 15 kW, 0.3% typical.
Intermodulation Distortion: DX 10: 0.8% or less, 1:1, 60/7000 Hz; 1.3% or less 4:1, 60/7000 Hz; SMPTE at 95% modulation. No audio filters required. DX 15: 1.0% or less, 1:1, 60/7000 Hz; 1.4% or less 4:1, 60/7000 Hz; SMPTE at 95% modulation. No audio filters required.
Transient Intermodulation Distortion: DX 10: 0.3% or less at 95% modulation, 2.96/8.0 kHz, 4:1. No audio filters required. DX 15: 0.5% or less at 95% modulation, 2.96/8.0 kHz, 4:1. No audio filters required.

Squarewave Overshoot: 0.3% or less at 400 Hz, 85% modulation. Measured peak to peak. No audio filters required.
Squarewave Tilt: 0.5% or less at 40 Hz, 80% modulation. No audio filters required.
Carrier Shift: Less than 1%, referenced to 1 kHz, 100% modulation.
Hum and Noise: -65 dB or better below 100% modulation (unweighted).
IQM: -32 dB at 1 kHz, 95% modulation; -40 dB typical.
Positive Peak Capability: DX 10: +145% at 10 kW; +125% at 11 kW (program modulation). DX 15: +135% at 15 kW, (program modulation).
Duty Cycle: Continuous 100% modulated sine wave.

Service Conditions

RF Monitor Provisions: Up to 10 volt RMS RF modulated output sample (constant sample level at High, Medium or Low power setting). Five volt RMS RF frequency monitor sample. Nominal over specified power range.
Power Consumption: DX 10: 11.6 kW typical at 10 kW, 0% modulation; 17.4 kW typical at 10 kW, 100% tone modulation. DX 15: 17.4 kW typical at 15 kW, 0% modulation; 26.2 kW typical at 15 kW, 100% tone modulation.
Ambient Temperature: -10°C to +50°C; derated 2°C per 1,000 feet (305 meters) of altitude.
Temperature Rise (Inlet/Outlet Air): Approximately 6°C.
Altitude: Up to 13,000 feet (3,962 meters).
Humidity Range: 0 to 95%, non-condensing.
Size: 72" (183 cm) W x 33" (84 cm) D x 78" (198 cm) H.
Weight: DX 10: 1,535 lbs. (698 kg).
DX 15: 1,700 lbs. (773 kg).

NOTES: 1. All measurements made into test load at rated power.
2. Noise may degrade if AC lines are unbalanced.

Specifications subject to change without notice.



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ADV. 889A 03/00